

Normal Close High Vacuum Solenoid Valve *XSA Series*

How to Order

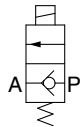
Face seal fitting
Compression fitting

XSA 1 - 1 2 S - 5 G 2 -

Female thread type

XSA 1 - 1 1 P - 5 G 2

Symbol



Valve size • Orifice diameter • Fitting size •

Face seal fitting/Compression fitting

1	Size 1	1	ø2	2	1/4
		2	ø3		

2	Size 2	2	ø3	2	1/4
		3	ø4.5		
		4	ø6		

3	Size 3	3	ø4.5	2	1/4
		4	ø6		

Female thread type

1	Size 1	1	ø2	1	1/8
		2	ø3		

2	Size 2	2	ø3	2	1/4
		3	ø4.5		

3	Size 3	3	ø4.5	3	3/8
		4	ø6		

Fitting type •

Face seal fitting/Compression fitting

V	Face seal fitting
S	Compression fitting

Female thread type

P	Rc female thread
N	NPT female thread

Voltage •

1	100 VAC
2	200 VAC
3	110 VAC
4	220 VAC
5	24 VDC
6	12 VDC
7	240 VAC
8	48 VAC
B	24 VAC
J	230 VAC



Spacer

Nil	None
A	With spacer

* The spacer is used to raise the body when fastening it onto a flat area. Refer to the table below if spacers are required separately.

Electrical entry

		DC	AC
G	Grommet	●	—
GS	Grommet (With surge voltage suppressor)	●	● ^{*1}
D	DIN terminal (With surge voltage suppressor)	●	●
DL	DIN terminal with light (With surge voltage suppressor)	●	●
DO	DIN terminal without connector (With surge voltage suppressor)	●	●
T	Terminal (With surge voltage suppressor)	●	●
TL	Terminal with light (With surge voltage suppressor)	●	●
C	Conduit (With surge voltage suppressor)	●	●
F	Flat terminal	●	—

Table: Spacer Part No.
(Applicable to the face seal fitting/compression fitting)

Model	Part no.
XSA1	XSA1R-8-1
XSA2	XSA2R-8-1
XSA3	

*1 Not CE/UKCA-compliant

XSA Series

Specifications

Model		XSA1-1 ₂	XSA1-2 ₂	XSA2-22	XSA2-32	XSA2-43	XSA3-3 ₂	XSA3-43
Action		Normally closed						
Fluid		Air, Inert gas						
Orifice diameter mmø		2	3	4.5	6	4.5	6	
Withstand pressure MPa(G)		1.5						
Minimum operating pressure Pa(abs)/OUT side		1 x 10 ⁻⁶						
Maximum operating pressure MPa(G)/IN side		1.0						
Maximum operating pressure differential MPa		0.8	0.3	1.0	0.3	0.1	0.8	0.3
Reverse pressure potential MPa(G)		0.5	0.25	0.4	0.2	0.05	0.2	0.15
Leakage Pa·m³/s	Internal	1.3 x 10 ⁻⁹						
	External	1.3 x 10 ⁻¹¹						
Piping connection system		Face seal fitting/Compression fitting/(Rc, NPT) Female thread						
Connection size	Face seal fitting (inch)	1/4			3/8	1/4	3/8	
	Compression fitting (inch)	1/4			—	3/8		
		(Rc, NPT) Female thread	1/8	1/4	—	3/8		
Ambient and fluid temperature °C		5 to 60						
Rated voltage		100/110/200/220/230/240/24/48 VAC 12/24 VDC						
Power consumption W	DC	4.5		7		10.5		
Apparent power VA	AC	7		9.5		12		
Coil temperature rise °C	DC	50		55		65		
	AC	60		70		70		
Allowable voltage fluctuation		±10% or less of the rated voltage						
Allowable leakage voltage	DC	2% or less of the rated voltage						
	AC	5% or less of the rated voltage						
Coil insulation type		Class B						
Weight kg	Face seal fitting	0.28		0.41		0.42	0.53	0.62
	Compression fitting	0.28		0.41		0.42	0.53	0.55
	(Rc, NPT) Female thread	0.33		0.53		—	0.74	0.74

Flow Rate Characteristics

Face seal fitting/Compression fitting

		XSA1-12	XSA1-22	XSA2-22	XSA2-32	XSA2-43	XSA3-32	XSA3-43
Flow rate characteristics	C[dm³/(s·bar)]	0.55	1.07	1.07	1.51	2.78	1.54	2.89
	b	0.41	0.36	0.34	0.24	0.21	0.24	0.21

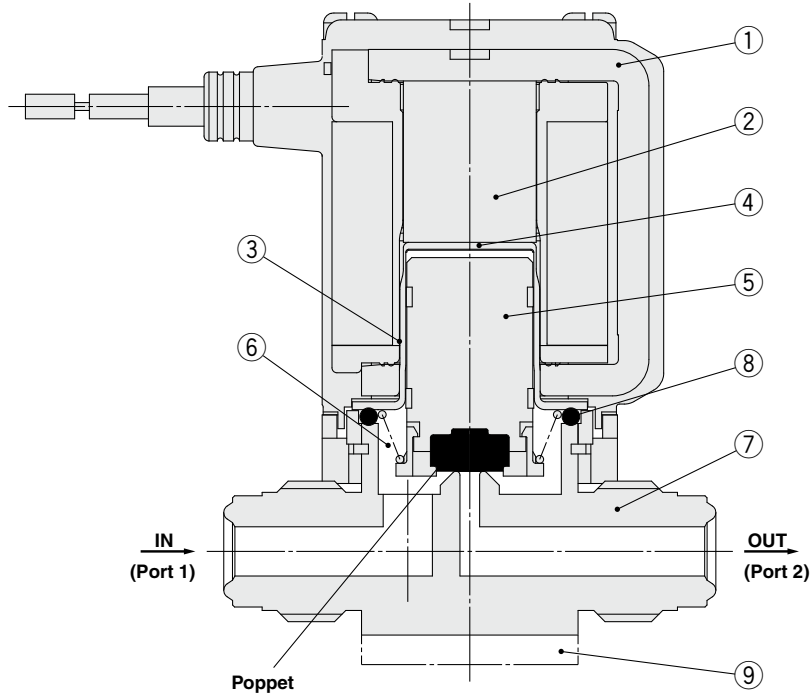
(Rc, NPT) Female thread

		XSA1-11	XSA1-21	XSA2-22	XSA2-32	XSA3-33	XSA3-43
Flow rate characteristics	C[dm³/(s·bar)]	0.54	1.14	1.14	2.23	2.37	3.50
	b	0.36	0.39	0.42	0.38	0.40	0.15



Construction/Operation

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Component Parts

No.	Description	Material
1	Solenoid coil	Cu + Fe + Resin
2	Core	Fe
3	Tube	Stainless steel
4	Seat (PET seat to shut the residual magnetism)	PET
5	Armature assembly	FKM, Stainless steel, Resin (PPS)
6	Spring	Stainless steel
7	Body	Stainless steel
8	O-ring	FKM
9	Spacer	Al

▨: Parts in contact with gas

<Option>

⑨ Spacer (Face seal fitting/compression fitting only): The spacer is used to raise the body when fastening it onto a flat area.

<Operating principle>

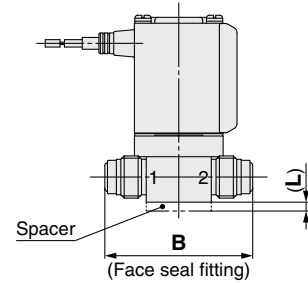
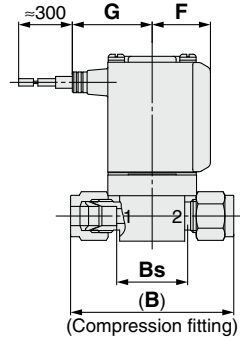
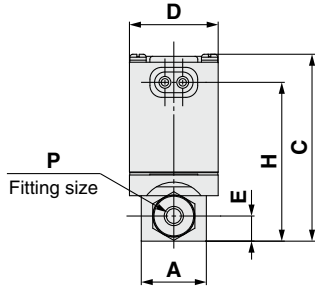
By energizing the solenoid coil ①, the armature assembly ⑤ overcomes the composite force, which consists of the force acting on the poppet due to differential pressure and the reactive force of the spring ⑥, and is adsorbed to the core ② side, thus opening the poppet.

When the energizing of the solenoid coil ① is canceled, the armature assembly ⑤ is separated from the core ② side by the reactive force of the spring ⑥, thus closing the poppet.

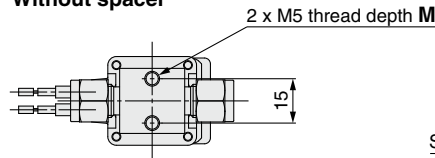
XSA Series

Dimensions: Face Seal Fitting, Compression Fitting

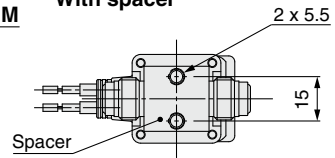
Grommet: G



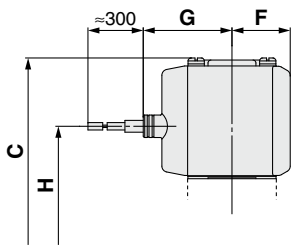
Without spacer



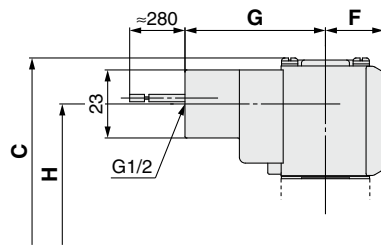
With spacer



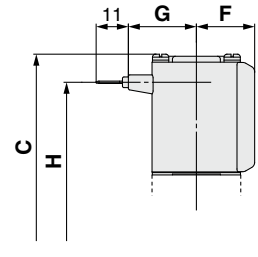
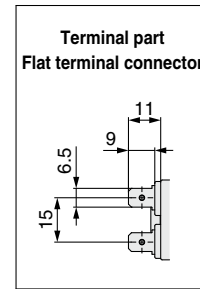
Grommet: GS



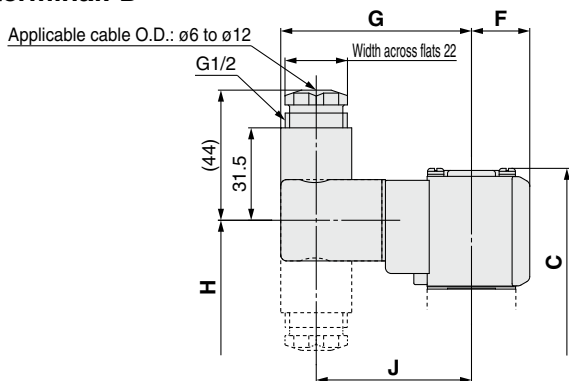
Conduit: C



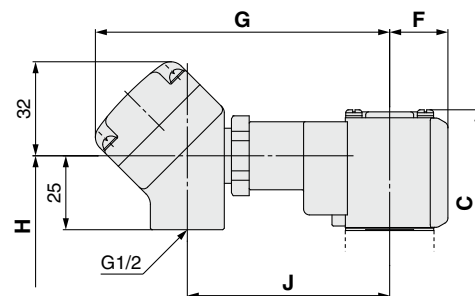
Flat terminal: F



DIN terminal: D



Terminal: T



Dimensions

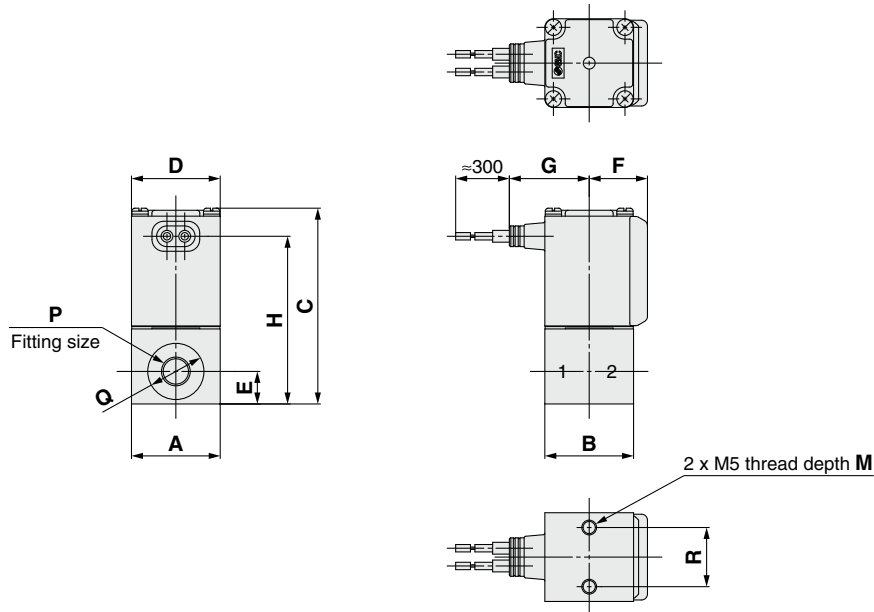
Model	A	B	Bs	C	D	E	F	L	M	P [inch]	[mm]																					
											Grommet: G		Grommet: GS		Conduit: C		Flat terminal: F		DIN terminal: D			Terminal: T										
											G	H	G	H	G	H	G	H	G	H	J	G	H	J								
XSA1-□2S	22	55	24	63	30	8.5	20	3	8	1/4	27	53.5	30	40	47.5	47.5	23	53.5	64.5	45.5	52.5	99.5	47.5	68.5								
XSA1-□2V		50	—								—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
XSA2-□2S	25	63	31.5	73.5	35	11.5	22	5	10	3/8	29.5	63	32.5	49.5	50	57	25.5	63	67	55	55	102	57	71								
XSA2-□2V		56	—								—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
XSA2-43S		64.5	31								—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XSA2-43V		67	—								—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
XSA3-32S	25	63	31.5	78	40	24.5	—	—	—	1/4	32	67.5	35	54	52.5	61.5	28	67.5	69.5	59.5	57.5	104.5	61.5	73.5								
XSA3-32V		56	—								—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—		
XSA3-43S		64.5	31								—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	
XSA3-43V		67	—								—	82.5	—	—	—	—	—	3/8	72	—	58.5	—	66	—	72	64	—	—	—	66	—	

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Dimensions: (Rc, NPT) Female Thread

Grommet: G



<p>Grommet: GS</p>	<p>Conduit: C</p>	<p>Flat terminal: F</p> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;"> <p>Terminal part Flat terminal connector</p> </div>
<p>DIN terminal: D</p> <p>Applicable cable O.D.: $\phi 6$ to $\phi 12$</p>	<p>Terminal: T</p>	

Dimensions

Model												Grommet: G		Grommet: GS		Conduit: C		Flat terminal: F		DIN terminal: D		Terminal: T		
	A	B	C	D	E	F	M	P	Q	R	G	H	G	H	G	H	G	H	G	H	J	G	H	J
XSA1-□1P(N)	30	30	66	30	11	20	8	1/8	$\phi 19$	20	27	56.5	30	43	47.5	50.5	23	56.5	64.5	48.5	52.5	99.5	50.5	68.5
XSA2-□2P(N)	36	36	79	35	14	22	10	1/4	$\phi 24$	20	29.5	68.5	32.5	55	50	62.5	25.5	68.5	67	60.5	55	102	62.5	71
XSA3-□3P(N)	40	40	88	40	16.5	24.5		3/8	$\phi 29$	22	32	77.5	35	64	52.5	71.5	28	77.5	69.5	69.5	57.5	104.5	71.5	73.5

[mm]